SCHOOL OF INDUSTRIAL ART

OF THE

PENNSYLVANIA MUSEUM

BROAD AND PINE STS., PHILADELPHIA

CIRCULAR

OF THE

PHILADELPHIA TEXTILE SCHOOL

ELEVENTH SEASON

1894-5

(Circular of School of Applied Art may be had on application.)

"The objects of this School, its results and its capabilities for good in the future, should enlist and retain the sympathy and support of all progressive and liberal-minded citizens."

GOVERNOR PATTISON.

"It is an institution which is destined to reflect, to an increasing extent, credit upon its promoters and upon the State, and it represents more directly perhaps than any other single agency that could be pointed out, the most powerful influences which are being exerted to-day in shaping the industrial destiny of the commonwealth."

From a Special Report on the School in the Report of the Secretary of Internal Affairs of Pennsylvania for 1888.

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THE SCHOOL—BROAD STREET FRONT.

The Franklin Institute g 1915.

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*The President is *ex-officio* a member of all Committees.

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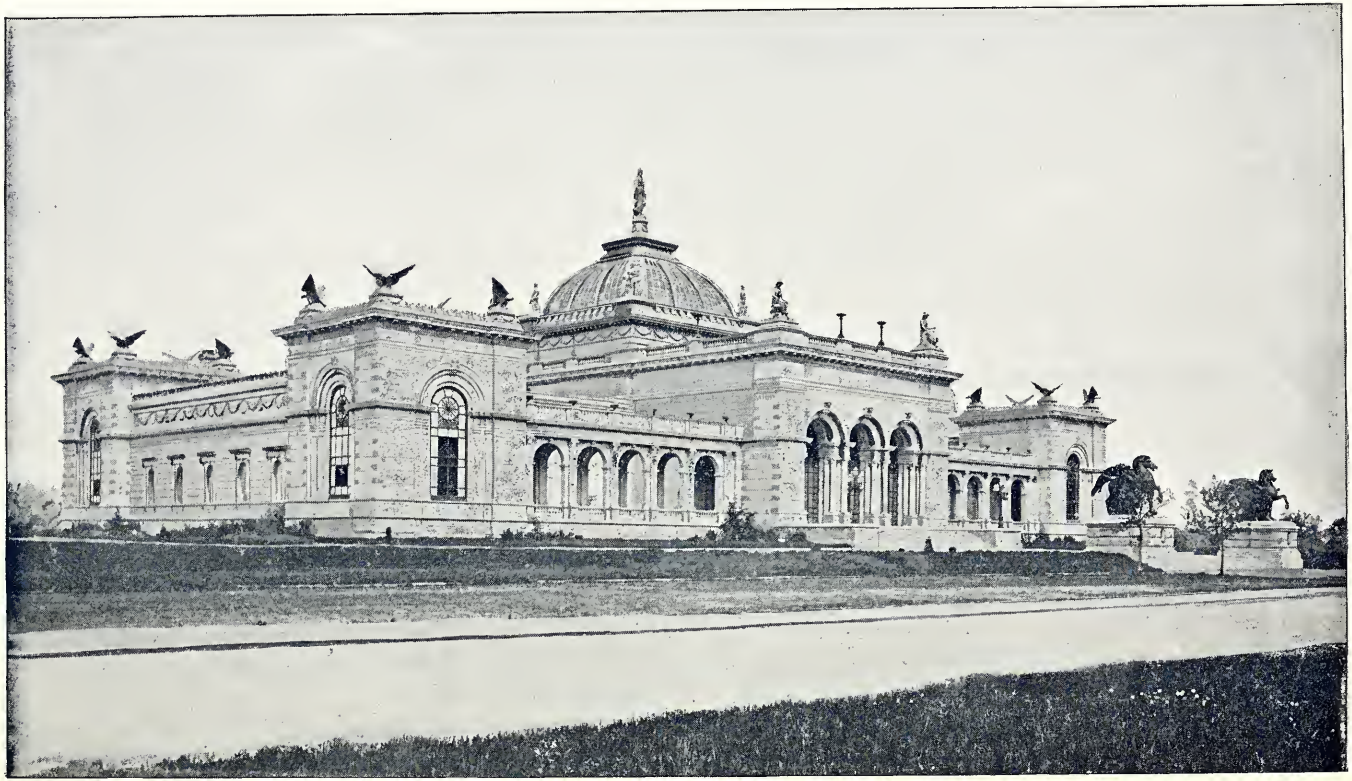


The Museum—Memorial Hall, Fairmount Park.

THE PENNSYLVANIA MUSEUM

AND

SCHOOL OF INDUSTRIAL ART

HISTORICAL SKETCH

The Pennsylvania Museum and School of Industrial Art was incorporated on the twenty-sixth day of February, 1876, for the purpose, as stated in its charter, of establishing "for the State of Pennsylvania, in the City of Philadelphia, a Museum of Art in all its branches and technical applications and with a special view to the development of the Art Industries of the State, to provide instruction in Drawing, Painting, Modeling, Designing, etc., through practical schools, special libraries, lectures and otherwise."

The purpose of the institution as thus defined is distinctly industrial. The collections at Memorial Hall, where the Museum is located, embrace examples of art work of every description; but as the City already possessed, in the Pennsylvania Academy of the Fine Arts, an institution devoted to the advancement of the Fine Arts, it was determined by the founders to make the collections of the Pennsylvania Museum as largely as possible illustrative of the application of Art to industry, and the instruction in the School has constant reference to a similar purpose.

The institution owes its origin to the increased interes in Art and Art Education awakened by the Centennial Exhibition of 1876.

Pending the incorporation of the institution, a fund of $25,000 was subscribed with which to make purchases at

the Exhibition. In the selection of objects, the trustees had the benefit of the advice of the foreign commissioners to the Exhibition, and, in several instances, the institution was the recipient of valuable gifts from individual exhibitors. Around the nucleus thus formed, the Museum has grown by purchase, gift and bequest to its present proportions, numbering in its collections upward of ten thousand objects.

The major part of the collection of the products and manufactures of British India, shown at the Centennial Exhibition, was presented to the Museum by the British Government at the close of that Exhibition. It occupies the whole of the west corridor at Memorial Hall.

The Moore memorial collection of objects of Art, presented to the Museum by Mrs. Bloomfield-Moore as a memorial of her late husband, occupies the entire east corridor. It contains exquisite examples of Lace, Embroidery, Fans, Jewelry, Pottery and Porcelain, Metal Work, Enamels, Carved Work in Ivory and in Wood, Tapestries and Pictures.

The Museum also possesses several smaller collections, sufficiently complete in themselves to be regarded as fairly representative of the departments to which they belong. Of these the Caspar Clark collection of Persian Metal Work, the Vaux collection of Etruscan Pottery, and the Fulgence collection of Textiles are perhaps the most important.

In addition to its actual possessions, the Museum is constantly receiving accessions in the form of loans of a more or less permanent character, by which the element of freshness is secured, and popular interest in the collections continually renewed.

The purpose of the School is to furnish such instruction in Drawing, Painting, Modeling, Carving and Designing as is required by designers, superintendents and workmen in the various Constructive and Decorative Arts, and to serve as a Training School for teachers of these branches.

It was opened during the winter of 1877–78 in temporary rooms in Industrial Art Hall, at Broad and Vine Streets. It was afterward removed to the rooms of the Franklin Institute, at 15 South Seventh Street, and again in 1880 to the building 1709 Chestnut Street, where it remained until its removal, in 1884, to 1336 Spring Garden Street, from which

place it was removed to its present location at Broad and Pine Streets in the summer of 1893. The Textile School was opened in an annex to the main building at 1336 Spring Garden Street, erected for its occupancy in 1885, and the School of Chemistry and Dyeing was opened at 1346 Spring Garden Street in 1887. Both Schools were removed in 1891 to 1303–1307 Buttonwood Street, until the acquisition of the property occupied at present made it possible to bring all the departments of the School together under one roof.

Up to the time of the removal to Spring Garden Street, the work of the classes was confined to the general courses in Drawing, Painting and Modeling, with constant regard to the needs of the industries, it is true, but without attempting to provide instruction in any of the occupations themselves.

The necessity of affording facilities for such technical instruction, however, became apparent very early in the history of the School. It was seen that only by familiarizing the students with the processes and industrial applications of design could the proper direction be given to such purely artistic training as the School had to offer.

The School of Applied Design and the School of Wood Carving were accordingly added in 1884, and the School of Textile Design and Manufacture in 1883. The School of Chemistry and Dyeing was established in 1887, and the Class in Mural Decoration was added as a department of the School of Decorative Painting in 1892, at which time the School of Architectural Design was also organized; the School of Modern Languages was established in 1893; so that under the present organization the following departments are in active operation:

School of Drawing
School of Applied Design
School of Textile Design and Manufacture
School of Chemistry and Dyeing
School of Wood Carving
School of Decorative Painting
School of Mural Decoration
School of Decorative Sculpture
School of Architectural Design
School of Modern Languages

The munificent gift of $100,000 by Mr. William Weightman, and the generous response of the public of Philadelphia to an appeal for assistance, by which a like amount was raised by popular subscription during the spring of 1893, enabled the institution to acquire the magnificent property at the northwest corner of Broad and Pine Streets, which it occupies at present. This property, with a front of 200 feet on Broad Street, and 400 feet on Pine Street, is by far the most spacious and most advantageous in its location of any establishment in America, that is devoted to the uses of a School of Art, situated as it is on the principal street and in the very heart of the City.

The building contains accommodations for 1,000 pupils—studios, chemical and mechanical laboratories, lecture rooms, administration rooms and an ample library.

The School Buildings—View from Fifteenth Street.

FACULTY OF TEXTILE SCHOOL

Director

E. W. France,
Formerly of Conshohocken Woolen Mills.

Assistant Director and Instructor in Textile Design and Mechanical Drawing

Bradley C. Algeo,
Graduate (1892) Pennsylvania Museum and School of Industrial Art.

Professor of Chemistry and Dyeing

Conyers Button Finckel,
Graduate (1888) Pennsylvania Museum and School of Industrial Art.

Instructor in Weaving and Related Branches

William Roebuck,
Formerly with Sevill Schofield, Son & Co., Philadelphia.

Instructor in Jacquard Sketching and Designing—Evening Classes

William Laird Turner,
Head Designer of many years' experience with Orinoka Mills.

Instructor in Color Harmony

Helen A. Fox,
Graduate (1892) Pennsylvania Museum and School of Industrial Art.

Instructor in Jacquard Sketching and Designing

Thomas Capper
Formerly with Cheney Bros., South Manchester, Conn.

Lecturer on Patent Laws

Charles N. Butler, C. E.

Instructor in Dyeing

Joseph C. Haas,
Graduate of l'École de Chimie at Mulhouse, Alsace.

Instructor in French, Italian and Spanish

A. M. Grillon.

Instructor in German

Madame A. M. Grillon.

Engineer and Instructor in Steam and Metal Work

Thomas Ridington.

Assistant Engineer

N. E. Whitehead.

Assistant Instructor in Hand Loom Department

Edward J. Roberts.

Superintendent of Building

Samuel Thompson, Jr.

Registrar

Leonora J. C. Boeck.

TEXTILE SCHOOL

ADVISORY COMMITTEE

The following well-known gentlemen have kindly consented to act as an Advisory Committee; holding themselves in readiness to give the School the benefit of their experience, by advice in the various matters which come up from time to time, pertaining to the industries which they represent: T. Benton Dornan, of Dornan Bros., Philadelphia; William Galey, of the Aberfoyle Manufacturing Co., Chester, Pa; Jules Wellens; Walter Erben, of Erben, Search & Co., Philadelphia; George C. Hetzel, of G. C. Hetzel & Co., Chester, Pa.; William Wood, of William Wood & Co., Phila.

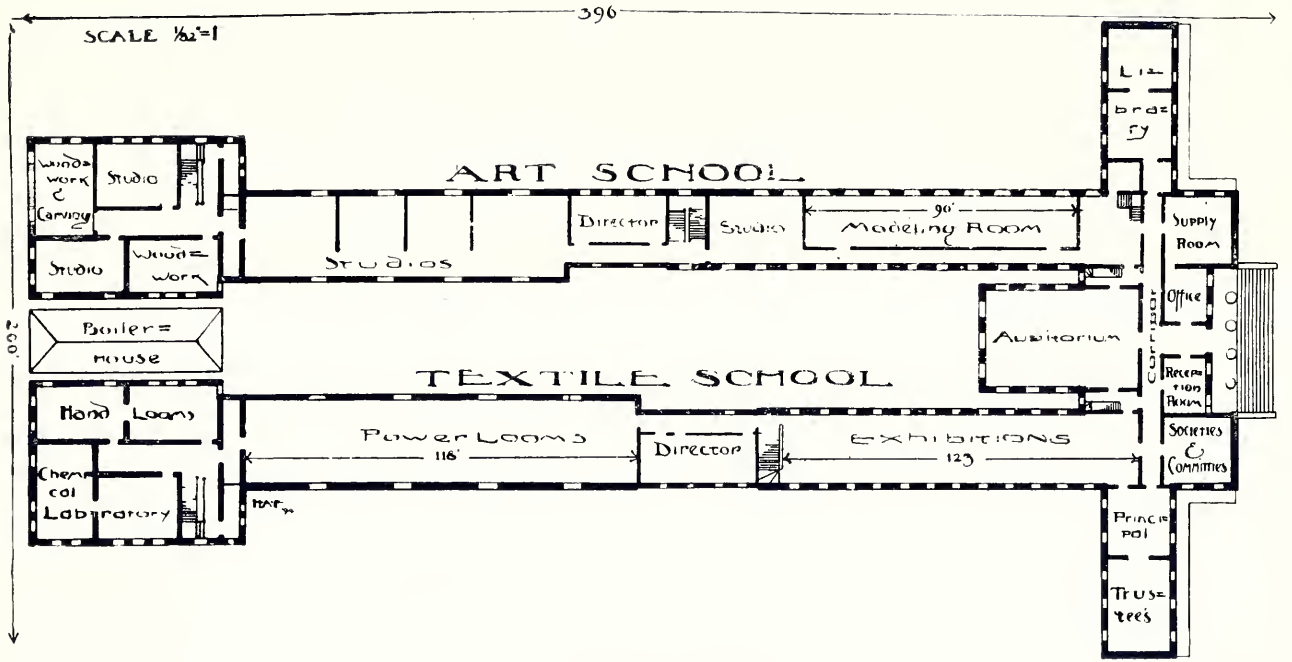
The quarters, which the School has occupied for the past year, are remarkably well adapted to its wants. The various rooms are admirably heated and lighted and the one drawback which confronted us in former years, the lack of sufficient room, has now been completely overcome; as we have at our disposal a floor space exceeding 30,000 square feet.

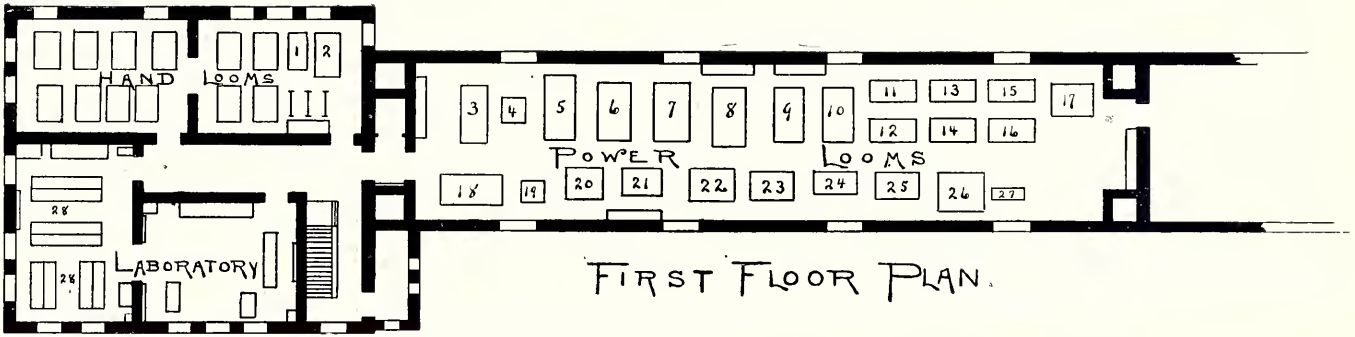
In the matter of machinery and other essentials, the School has, through the generosity of the manufacturers, managed to keep apace with the growth of its surroundings; as will he seen by a glance at the extent of the equipment of the various departments as set forth below.

WINDING DEPARTMENT

The facilities for winding, which have been considerably increased during the past year, now consist of the following machines:

1 A. J. Culp & Co. cop winder for carpet yarns.
1 20 Spindle, Atwood Machine Co., silk quiller.


396
SCALE 1/32"=1
200
Wood-work & Carving
Studio
Studio
Wood-work
ART SCHOOL
Studios
Director
Studio
90'
Modeling Room
Lib-rary
Supply Room
Office
Corridor
Auditorium
Reception Room
Societies & Committees
Boiler-house
TEXTILE SCHOOL
Hand Looms
Chemical Laboratory
Power Looms
118'
Director
EXHIBITIONS
123
Principal
Trustees
BROAD STREET.
PINE STREET.



FIRST FLOOR PLAN.

1. Schaum & Uhlinger Ingrain Carpet Card Cutter.
2. Schaum & Uhlinger French Index Card Cutter.
3. Bridesburg Clipper Loom, with Thomas Halton Double Lift Double Cylinder, 600 Jacquard Machine.
4. Schaum & Uhlinger Piano Power Card Cutter.
5. Knowles Upholstery Loom, 4 x 4 Boxes, with Schaum & Uhlinger 1200 Jacquard Machine.
6. Crompton Ingrain Carpet Loom.
7. Knowles Ingrain Carpet Loom.
8. Knowles Heavy Worsted Loom, Double Beam, 30 Harness, 4 x 4 Boxes.
9. Crompton Heavy Worsted Loom, Double Beam, 25 Harness, 4 x 4 Boxes.
10. Crompton Heavy Worsted Loom, Double Beam, 27 Harness, 4 x 4 Boxes
11. Fairmount Machine Co. Light Woolen Loom, 16 Harness, 4 x 4 Boxes.
12. Knowles Gem Loom, 16 Harness, 4 x 4 Box, with Multiplier.
13. Wood Roller Loom.
14. Knowles Gingham Loom, 7 x 1 Box, with Multiplier.
15. Stafford Mfg. Co. Light Cotton Loom, 20 Harness, Double Action Dobby and Leno Attachment.
16. Crompton Gingham Loom, 6 x 1 Boxes, with Multiplier.
17. Schaum & Uhlinger Ribbon Loom, 24 Harness, Double Lift Dobby.
18. M. A. Furbush & Sons' Machine Co. Ingrain Carpet Loom, with Fifth Box Attachment.
19. A. J. Culp & Co. Cop Winder.
20. W. W. Altemus & Son's Cop Winder.
21. Collins Bros. Ring Twister.
22. Knowles Silk Loom, 4 x 4 Boxes, with Schaum & Uhlinger 1200 Jacquard Machine.
23. Schaum & Uhlinger Silk Loom, 4 x 4 Boxes, 600 Rotary Cylinder Jacquard Machine.
24. Whitin Machine Co., Light Cotton Loom, 4 x 1 Boxes, with Stafford Mfg. Co. 400 Raise and Drop Jacquard Machine.
25. Schaum & Uhlinger Fancy Swivel Loom, 400 Jacquard Machine.
26. Knowles Fancy Silk Loom, 4 x 4 Boxes, 30 Harness and Multiplier Attachment.
27. Atwood Machine Co. Silk Quiller.
28. Laboratory Practice Desks.

1 12 Spindle, Altemus, bobbin winder with improved variable motion.

1 Altemus presser spooler.

1 12 Spindle, Altemus, cop winder for carpet yarns.

1 12 Spindle, Fairmount Machine Co., bobbin winder.

1 24 Spindle, Collins Bros., ring twister.

HAND LOOM DEPARTMENT

The following looms comprise the outfit of the Hand Loom Department:

2 20 Harness looms.

5 24 Harness looms.

41 30 Harness looms.

1 200 Jacquard Machine, tied up for narrow fabrics.

1 200 Jacquard Machine, tied up for damask.

1 400 Jacquard Machine, tied up for satin-faced upholstery goods.

1 400 Jacquard Machine, tied up for petit-point upholstery goods.

1 400 Jacquard Machine, tied up for double cloth cloakings.

1 600 Jacquard Machine, tied up for rugs.

1 600 Jacquard Machine, tied up for Brussels carpet.

1 26 Row Ingrain carpet loom.

[NOTE.—The above Jacquard Machines, with the exception of the last three, are mounted on frames similar to those of our regular hand looms.]

POWER LOOM DEPARTMENT

The extent and completeness of this department, as shown by the accompanying list, is due to the generosity of the makers, who have presented the various looms bearing their names:

1 Schaum & Uhlinger improved ribbon loom, with 24 harness double lift dobby.

1 George W. Stafford Mfg. Co. light cotton loom, with 20 harness double acting dobby and leno attachment.

1 Wood roller loom.

1 Knowles gingham loom, 7 x 1 box and multiplier.

1 Fairmount Machine Co., light woolen loom, 16 harness, 4 x 4 boxes.

1 Knowles Gem Loom, 16 harness, 4 x 4 boxes with multiplier.

1 Knowles fancy silk loom, 30 harness, 4 x 4 boxes.

1 Schaum & Uhlinger fancy swivel loom, with 400 Jacquard Machine.

1 Whitin Machine Co., light cotton loom, 4 x 1 box, with a George W. Stafford 400 raise and drop Jacquard Machine.

1 Schaum & Uhlinger silk loom, 4 x 4 boxes, with a 600 rotary cylinder Jacquard Machine.

1 Bridesburg clipper loom, with a Thomas Halton double lift, double cylinder, 600 Jacquard Machine, for table-covers.

1 Knowles upholstery loom, 4 x 4 boxes, with a Schaum & Uhlinger 1200 Jacquard Machine.

1 M. A. Furbush & Son Machine Co., high speed Ingrain carpet loom with fifth box attachment.

1 Knowles Ingrain carpet loom, improved.

1 Crompton Ingrain carpet loom, improved.

1 Knowles silk loom, 4 x 4 boxes, with Schaum & Uhlinger 1200 Jacquard Machine.

1 Knowles heavy worsted loom, double beam, 30 harness, 4 x 4 boxes.

1 Crompton gingham loom, 6 x 1 boxes and multiplier.

1 Crompton heavy worsted loom, double beam, 25 harness, 4 x 4 boxes.

1 Crompton heavy worsted loom, double beam, 27 harness, 4 x 4 boxes.

CARD-CUTTING DEPARTMENT

1 Schaum & Uhlinger Ingrain carpet card-cutter.

1 Schaum & Uhlinger foot-power French index card-cutter.

1 Schaum & Uhlinger power French index card-cutter.

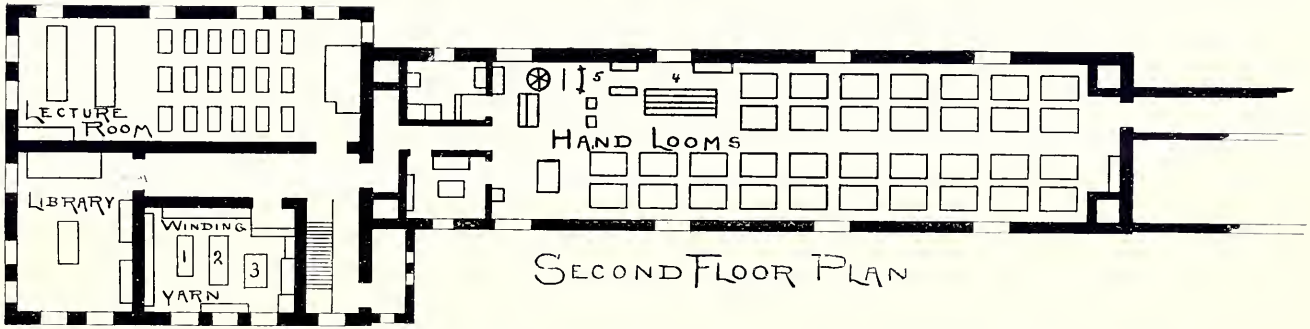
CARDING AND SPINNING DEPARTMENT

1 Set of Gessner cards.

3 Gessner spinning frames.

FINISHING DEPARTMENT

1 James Hunter Machine Co., North Adams, Mass., fuller and washer.



1. Fairmount Machine Co., Bobbin Winder. 2. W. W. Altemus & Son's Bobbin Winder with Variable Motion. 3. W. W. Altemus & Son's Presser Spooler. 4. Drawing-in Frames. 5. Warping Frames.

1 Parks & Woolson, Springfield, Vt., shear with patent list motion.

1 Schaum & Uhlinger, Philadelphia, Hydro-extractor.

1 Gessner improved rotary press.

CHEMISTRY AND DYEING DEPARTMENT

The Chemical Department is fitted up with admirable thoroughness, and occupies two spacious rooms on the first floor, one of which is used for a lecture room, and for the careful weighing of chemicals and dyestuffs. The other is fitted up with desks for the accommodation of a class of fifty, each desk being supplied with gas and water, and all of the apparatus necessary to perform the experiments in chemistry, sample scouring and dyeing, and we feel that it is one of the most convenient and comfortable working rooms that could be devised. A great improvement has been made this year by the introduction of a rotary fan, carrying out the noxious vapors always connected with a laboratory. We are constantly supplied, through the kindness of the dyestuff dealers and manufacturers, with samples of all the new products, which the student has the benefit of testing.

A large room in the basement, admirably adapted for use as a dye-house, has a cement floor, good water supply and drainage. All the machinery and appliances necessary for practical dyeing have been added, and the entire room is so arranged that the student receives the practical as well as the experimental part of dyeing.

The dye-house is equipped with copper-lined tanks of regulation depth, which are heated by steam; scouring tanks and bleaching tank, large copper tank for making scouring solutions, hydro-extractor, and a large drying room with coils of steam pipes for heating, thus giving scope for possibilities for which provision has never before been made.

METAL AND STEAM WORK

A feature which has recently been added to the regular course of instruction, is that of Elementary Metal Working or Vise-Work, and, in connection with this, the principles of the economic production and use of steam are taught.

For the practical part of this feature, two large and airy rooms have been fitted up in the basement, with the necessary tools and appliances.

COURSES OF STUDY

The general course of instruction embraces the Theory of Textile Designing and its practical applications to the art of weaving and related branches—scouring, bleaching and dyeing of yarns and materials, and finishing of fabrics. In addition, Chemistry is taught, with special reference to the needs of the different branches of the textile industries.

The course of instruction extends over a period of three years, and is especially adapted to meet the wants of those desiring to study cloth manufacturing, designing of textiles, weaving and dyeing. The course is intended to give the student a thorough scientific and practical knowledge of these subjects. (For partial Textile Course, see page 32).

As an adjunct to the above, an Elementary Course in Metal Working has been devised, which is intended to make the student more practical in the work of loom-fixing.

Instruction is given in the care and proper manner of handling the various tools, files, vises, wrenches, etc.

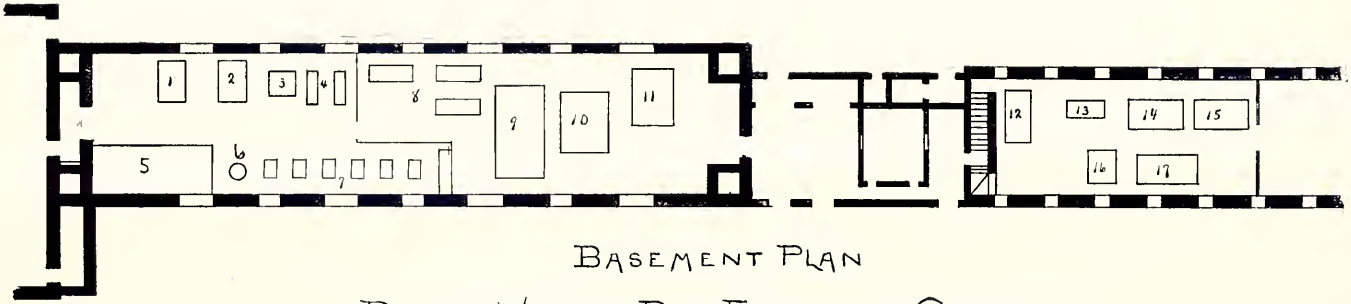
The exercises consist mainly of vise-work, and embrace chipping, filing and smoothing, cutting inside and outside threads, and general loom repair-work.

LECTURES

Lectures are given on the different materials used in the textile industries, such as wool, cotton, silk, mohair, jute, flax, etc., their source, chemical and physical structure of the fibre, the action of chemicals on the different fibres, and their affinity for the various dyestuffs.

Having studied the raw materials, the different processes by which they are converted into yarns, such as sorting, cleansing, carding and spinning of wools, systematically mixing, opening, carding, drawing and spinning of cotton, and finishing of the various fabrics, are taken up.

Lectures are also given on the Economic Use of Steam



BASEMENT PLAN

DYEING, WET AND DRY FINISHING, CARDING, SPINNING.

1. Gessner Fulling Mill. 2. James Hunter Fuller and Washer. 3. Cloth Gig. 4. Chain Dyeing Vats. 5. Dry Room. 6. Hydro-extractor. 7. Skein Dye Vats. 8. Gessner Spinning Frames. 9, 10, 11. Gessner Cards. 12. Gas Engine. 13. Cloth Brush. 14, 15. Gessner Pressers. 16. Parks and Woolson Shear. 17. Gessner Shear.

for Factory Heating and Power, Boiler Setting, and Steam-Fitting in General.

SPECIAL COURSE IN CHEMISTRY AND DYEING

In this course the students spend all of their time in the Laboratory, performing experiments in Chemistry and Dyeing. They also attend all of the lectures relative to this branch.

The course embraces the following studies: Chemistry of the elementary substances and their compounds with each other. Action of acids and alkalies on fibres and colors. Qualitative analysis. Detection of acids. Analysis of salts. Manufacture of scouring soaps. Scouring, bleaching and dyeing of wool and cotton. Fast colors on cotton and wool. Testing colors for strength and purity. Testing dyed samples to determine the fastness of the color. Making comparative analysis of dye tests and matching dyed samples.

For those not wishing to take up the study of Chemistry, special arrangements can be made for a course in Dyeing alone.

DEPARTMENT OF CLOTH FINISHING

The Department of Cloth Finishing will be in operation soon after the opening of the school year.

The majority of the fabrics produced in the School will be finished by the advanced classes, under the supervision of a competent instructor.

This new feature in the course of instruction should prove of great practical value, as the student will not only see the fabrics as they come from the loom, but will be enabled to observe the effect produced, and the changes which take place throughout the various process of finishing.

PATENT LAWS

In these days of Patents and Conflicting Patents, it has become necessary and absolutely essential that the successful mill owner or mill manager should have some knowledge of the methods of acquiring patents, and of the laws which govern and protect them.

Recognizing the necessity and importance of this, the School has secured the services of a gentleman thoroughly versed in these matters who will, at stated times in the year, give lectures bearing on the subject. These lectures as well as all others given in the School will be free to the students.

MODERN LANGUAGES

Late in the term of '93 and '94, it was thought advisable to give the students an opportunity to acquire a knowledge of the Modern Languages, and to this end competent teachers were engaged to give instruction in French and German; such instruction to be given two afternoons in the week after the regular session of the School. The fee was made very small, and quite a number availed themselves of the opportunity thus afforded.

This year it has been made a permanent feature, Spanish has been added, and the lessons so arranged as not to interfere with the work of the regular course.

REQUIREMENTS FOR ADMISSION

Applicants for admission are expected to be as proficient in the common English branches as the completion of the ordinary grammar school course would imply. It is also desired that pupils should be fairly well grounded in a knowledge of freehand drawing; but proficiency in this branch is not required as a condition for admission, and pupils who are deficient in this respect will be given an opportunity, and furnished with every facility, for making up such deficiency. Students must pass an examination in Arithmetic (through percentage).

SCHOLARSHIPS

In consideration of an annual appropriation to the School by the Legislature of Pennsylvania, each county in the State is entitled to one free scholarship in any department of the School for the full course of three years. These appointments are made by the Governor of the State, usually on the recommendation of members of the State Legislature.

Five free scholarships are also competed for annually by pupils from the advanced classes of the grammar schools of

the city of Philadelphia. Application for admission to this competition should be made, through the Principal of the school from which the applicant comes, to the Board of Public Education, 713 Filbert Street.

A certain number of free scholarships have also been provided by the bequest of Mr. Joseph E. Temple and by gifts for this purpose by Mrs. Susan R. Barton, Mrs. William Weightman, Jr., and Mrs. Chapman Biddle. These are awarded by the Committee on Instruction, after satisfactory evidence has been furnished of the applicant's ability and earnestness of purpose. The scholarships are not granted for partial or special courses, but only to those who expect to attend a full, regular course, requiring an attendance of at least three years. Written applications, stating fully the qualifications of the applicants, and the grounds on which the application is based, should be sent to the Principal on or before October first.

FEES

All fees are payable in advance, and *money once paid will in no instance be refunded*, except by special action of the Committee.

Full Textile Course, Day Class, $150 per year of 36 weeks.

Partial Textile Course (see page 32), $75.

Partial Textile Course, Dyeing alone, Day Class, $100 per year of 36 weeks.

Designing and Weaving Course, Evening Class, $20 per term of 6 months.

Dyeing, Evening Class, $15 per term of 6 months.

French, German, Italian or Spanish, two lessons a week, $5.00 per each term of 3 months.

PAYMENTS

A partial payment of $25 should accompany all applications for admission to the Day Classes, the remainder to be paid at the opening of the school year.

A partial payment of $5 should accompany all applications for admission to the Evening Classes; the remainder to be paid at the opening of the school year.

DEPOSITS

Students in the Day Class are required to make a deposit of $15 to cover breakage and cost of yarns for final examination warp. This is returned at the close of the term less the amount due for such purposes.

SCHOOL YEAR

The next school year of thirty-six weeks begins on Monday, October 1, 1894, and ends June 8, 1895. The evening classes open on Monday, October 8th, and close April 6th. There is a vacation of one week at Christmas. The School is also closed on the Friday following Thanksgiving Day, and on Washington's Birthday, Good Friday, Easter Monday, and Decoration Day.

HOURS OF STUDY—DAY CLASSES

The hours of study for the Day Classes are from 9 o'clock until 1, and from 2 to 4 every day in the week, except Saturday.

EVENING CLASSES

The hours of study in the Evening Classes are from half past 7 until half past 9 on Monday, Wednesday and Friday evenings.

DISCIPLINE

The Discipline of the School is made as simple as possible, and students are made to feel that as the requirements are definitely stated, and the instruction in each branch given at well-known hours, the progress of each is substantially in his own hands.

All students, however, are expected to be prompt and regular in their attendance on all the exercises and lectures of their course, and irregularity in this respect will be regarded as sufficient reason for dismissal. Schedules showing the arrangement of classes and the hours to be given by the instructors to each are posted in the class-rooms. Students must observe these schedules and may not claim the teachers' attention at other hours.

Polite and orderly conduct is also insisted upon at all

times, and any damage to School property must be made good by the student causing it. No book, chart or other educational appliance will be allowed to leave the building under any circumstances.

All work must be put away before the student leaves the building. Lost articles may be inquired for of the janitor. Students are requested to give prompt notice of change of address.

CERTIFICATES AND DIPLOMAS

Day Classes

Certificates are awarded on the completion of the regular First and Second Year Courses, and the Diploma of the School is awarded to those who satisfactorily complete the full Three Years Course.

Evening Classes

A Certificate is awarded to students who complete the regular Two Years Course in either Textile Design or Dyeing.

PRIZES

"Bronze Medals" are offered in the First, Second and Third Year Classes, to be awarded to the students attaining the highest rating in their final examinations, taken in connection with the character of the regular work which they have done throughout the term.

RULES FOR FINAL EXAMINATIONS AND PRIZE COMPETITIONS

A student is considered qualified to enter the final examinations, who has completed, to the satisfaction of the instructors, the course of study as perscribed for the first thirty weeks of the term.

The examination work may consist of the task of producing any one of the following fabrics: Trousering, Suitings, Dress Goods, Upholstery, or any other class of fabrics to be selected by the Director.

In the first year the student, after completing his designs, is supplied with the necessary colored yarns, and performs his work on the hand-loom.

The second and third-year students are furnished with the white yarn, which they must dye for themselves, making all the necessary calculations and performing their work on one of the power-looms, without the aid of the instructors.

In the first year $2.50, and in the second and third years $5.00, of the deposit made by the student, are retained by the School to pay for the yarn used in the final examination.

All fabrics produced by the student, including the piece made for the final examination, are retained as the property of the School.

TOOLS.

The tools required are: one set of drawing instruments, one drawing board, one pair of plyers, one pair of scissors, one reed hook, one screw-driver, one machinist's hammer, one flat chisel, two flat files, one half-round file, one scraper. Students should also be provided with a full suit of overalls. Materials such as designing paper, paints, brushes, drawing boards, drawing instruments, pencils, etc., are for sale in the School at less than retail prices. The expense of these is usually $15.00 for the year.

BOARD.

Good board may be obtained in the vicinity of the School for from $4.50 per week upward. A list of desirable boarding-houses is kept in the School and will be furnished on application.

EMPLOYMENT FOR GRADUATES.

The School does not undertake to find places for graduates, but applications for teachers and designers are constantly being received by the Principal, and students desiring employment are requested to notify him to that effect.

No pupil will be recommended for a position, either as teacher or designer, who has not spent at least one year in the School.

SUBJECTS OF STUDY

FIRST YEAR—THEORETICAL WORK

General principles of the structure of fabrics. Warp and filling. Explanation of the term, "The Weave," and methods of representing the same on square designing paper. Classification of Weaves. Foundation and Derivative Weaves. Plain Cloth and the methods of ornamenting it. Methods and rules for constructing the various twill and satin weaves. Influence of the twist of the yarn on the appearance of the cloth.

Explanation of Drafting. Rules for preparing Drawing-in Drafts and Chain Drafts from weaves. Reducing weaves to their lowest number of harness. Calculating the number of heddles required for fancy and straight drawing-in drafts.

Various weaves whose foundations are either the Plain, Twill, or Satin weave. How they are constructed. The various kinds of cloth to which they are adapted. Circumstances which make it more advantageous to use one class of weave than another. Weaves which are suitable for different classes of fabrics in contrast to weaves for particular classes.

Weave Combination. Points to be considered in making a combination weave. Consideration of the texture in placing one weave with another. Weaves which take various amounts of filling. Weaves which take up the warp at different rates. Combining weaves to form stripes and checks.

EFFECT OF COLOR ON THE WEAVE

How the manner of dressing the warp and of introducing the colors of the filling affect the appearance of the weave.

One-and-one and two-and-two system. Utility of the one-and-one system on common weaves. Two and two and four and four applied to fancy weaves. Irregular patterns of two shades.

YARN CALCULATIONS

Grading yarns with regard to size. Explanation of the various standards for Cotton, Wool, Worsted, Silk and Linen Yarns. Finding the equivalent counts of yarns in different systems. Determining the counts of a thread composed of two or more threads. Ascertaining the counts of a thread to twist with a known thread to produce a required count, etc. Calculations as to weight and cost of warp. Calculations as to weight and cost of filling.

CLOTH ANALYSIS

Ascertaining the Weave, Drawing-in Draft and Chain Draft. Ends per inch and picks per inch. Dressing of warp and arrangement of filling. Determing the "Take-up" of warps in weaving. Determing the counts of warp and filling yarns from sample. Ascertaining weight and cost of warp per yard of cloth woven. Ascertaining weight and cost of filling per yard of cloth woven. Determining the position of the colors of the warp on the drawing-in draft.

CLOTH PRODUCED BY USING AN EXTRA FILLING

Figured effects produced by floating the extra filling on the face. Figures produced by so stitching the extra filling as to produce light and dim effects. Single-faced and double-faced fabrics produced by the use of extra filling. Extra filling for adding weight to a cloth.

CLOTH PRODUCED BY USING AN EXTRA WARP

Single-faced fabrics produced by using an extra warp. Double-faced fabrics produced by an extra warp. The use of an extra warp for figuring on the face of a fabric. Increasing the weight of a cloth by means of an extra warp. Heavy Worsteds and Woolens, etc. Proper method of stitching the back warp to the face. Effect of improper stitching. Imperfect cloth resulting from the same.

INSTRUMENTAL DRAWING

Construction of Plane Geometrical figures. Geometrical Designs. Projections. Machine Drawing.

FREEHAND DRAWING AND COLOR WORK

Grinding and Preparation of Colors. Matching of Colors from printed goods, woven material or yarns. Arrangement and coloring of designs in stripes, plaids and figured effects for Upholstery Goods, Draperies, etc. Sketching in Charcoal of figures, flowers and conventional forms, to be executed on the Jacquard machine.

CHEMISTRY

The Course in Chemistry extends over the full period of the school year, the student devoting eight hours each week to lectures and laboratory work.

Lectures are given every Tuesday morning on the general elementary Chemistry. The elements are taken up separately and also in the compounds they form with each other.

The elements are considered in the following manner: first, their source, and in what forms they exist, whether found free or in combination. If found in combination the processes for manufacturing them in the free state are given.

The peculiarities of the elements are then discussed: whether liquid, solid or gaseous in form, what action acids and alkalies have on them, and with which of the other elements they combine most readily.

Then the most important compounds of the elements are taken up and thoroughly considered: the processes for their manufacture and the practical uses made of them; the advisability of, and reason for, using one compound in preference to another of exactly the same nature; and, finally, the tests for the elements are given, that is, the ones most commonly applied to determine the presence of the element. The course of lectures embraces the following elements, the ones most commonly met with only being considered: Oxygen, Hydrogen, Nitrogen, Chlorine, Bromine, Iodine, Fluorine, Sulphur, Phosphorus, Arsenic, Antimony, Bismuth, Carbon,

Silicon, Boron, Sodium, Potassium, Ammonium, Silver, Calcium, Strontium, Barium, Lead, Magnesium, Zinc, Cadmium, Aluminium, Chromium, Manganese, Iron, Cobalt, Nickel, Copper, Mercury and Tin.

The entire course of lectures is illustrated by means of experiments, showing the methods of producing and testing the substances under consideration, and reference is constantly being made to the practical uses of the Chemicals in the Dye-House.

After having satisfactorily finished the course in Elementary Chemistry, qualitative analysis of the metallic elements and the detection of acids are taken up. By this means he is fitted to analyze the chemicals with which he will have to deal in a dye-house or laboratory, such as Acids, Soaps, Alkalies, Mordants, Water, etc.

FIRST YEAR—PRACTICAL WORK

In the weave-room the work of the First Year Class is executed on small hand-looms, having a capacity of thirty harness. They are especially suited to the course of instruction as laid down, being capable of adaptation to almost any class of work.

Each student has the exclusive use of one of these looms, and after having laid out his design and performed all the necessary calculations, proceeds with the various operations of Warping, Beaming, Drawing-in, Reeding, Adjusting the Warp in the Loom, Chain Building, etc.

While performing all the detail necessary to the production of the woven fabric, the necessity of care and judgment is constantly impressed on the student. The class of work embraces a variety of goods produced from cotton, wool and worsted, and is laid out so as to coincide with the theoretical instruction given at the time, and thus strengthen it in the mind of the student.

LABORATORY PRACTICE

Chemical and Physical Changes.
Oxygen and Oxidizing Agents.
Hydrogen and Reducing Agents.
Nitrogen and its Compounds.
Nitric Acid and Ammonia.

Theory of Atoms and Molecules, with application of the same in figuring out Chemical Equations.

Chemical Equations, with their use.
Acids—Alkalies—Salts.
Chlorine—Bromine—Iodine.
Sulphur—Sulphuric Acid—Sulphur Dioxide.
Phosphorus—Sodium Phosphate.
Carbon—Carbonic Acid.
Sodium—Potassium—Ammonium—Magnesium.
Barium—Calcium—Strontium—Manganese.
Zinc—Cobalt—Nickel—Iron—Chromium.
Aluminium—Mercury—Lead—Bismuth.
Copper—Cadmium—Arsenic—Antimony.
Tin and Silver.

Compounds of the above with the acids and alkalies, special attention being given to the salts which will be most frequently met with in the dye-house.

Qualitative Analysis.
Detection of Metals.
Detection of Acids.
Analysis of Salts.
Experiments in Soap Manufacturing.

METAL WORK

Chipping and filing in cast-iron.
Surfaces, flat and curved right angles and parallels.
" worked to a plane.
" " " line.
" " " match.
" " " match and reverse.

Tools used : Files, 5 in., 8 in., hand, bastard and second cut. Chisels, flat and cape. Hammer, 4 in. scale, 4 in. square and bevel. 6 in. Beam Calipers. 3 in. Dividers. Surface Plates and Scribe Blocks.

SECOND YEAR—THEORETICAL WORK

The value of a knowledge of Double Cloth.

Method of constructing Double Cloth Weaves, and of indicating them on designing paper.

Double Cloths having the proportion of threads in Warp and Filling, as follows:

One face—one back.

Two face—one back.

Three face—one back. Also the following proportions:

Warp.	Filling.
One face—one back.	Two face—one back.
Two face—one back.	One face—one back.
Two face—two back.	Two face—two back.

Structure of Double Plain Cloths.

Rules for stitching Double Cloths together, in order to form a perfect fabric.

Effect of improper stitching on the face of the fabric.

Productions of regular patterns upon the face of the cloth by means of the stitching.

Reversible Cloths—Plain.

Reversible Cloths—Figured.

Relation of the pattern of each cloth to facilitate stitching.

Figuring with two cloths.

Cloths of the same quality, but different patterns.

Cloths of the same patterns, but different quality.

Patterns formed on Double Cloths by means of binding: Worsted Coatings, Checks, Stripes, Quilts, etc.

PILE FABRICS

Their Classification

Filling Pile.—Construction of Velveteens, Corduroys, Chinchillas, Whitneys, Chenille for Curtains and Rugs, Spun Chenille for Fringes.

Warp Pile.—Formed from an extra Warp or Warps by means of wires. Velvets, Figured Velvets, Astrakans, cut and uncut, and their various methods of construction.

Tapestry, Brussels and Wilton Carpets.

Double Pile.—The principles of the construction and

method of producing double-pile fabrics. The manner of cutting them in the loom while weaving.

Piles Formed Without Wires.—Smyrna Carpets and Rugs, Turkish Towels, etc.

GAUZE FABRICS

Structure of Gauze.

Various orders of crossing.

Figuring with plain Gauze.

Combination of Gauze with other orders of weaving.

Plain figures upon Gauze ground.

Combination of Gauze figures and figuring with extra warp.

Figuring with extra filling upon Gauze.

Materials used in making Gauze Fabrics.

Madras Cloths.

Methods of making Doupes.

THE JACQUARD MACHINE

The history of the Jacquard machine. The principles of its construction. Explanation of the various parts and their working. Methods of adapting the Jacquard machine to all classes of fabrics. Various styles of machines. Single lift, single cylinder. Single lift, double cylinder. Double lift, single cylinder. Double lift, double cylinder. Raise and drop.

Tying up the Jacquard machine. The Comber-board. Methods of calculating and threading the same for the various Tie-ups. The French and English systems of Tying up. The Straight-through. The Point tie. Combination of Straight and Point. Straight-through Tie-up for repeated effects in one repeat of the design. Two-section tie-up. Four-section tie-up. Three-section tie-up. Tie-up for producing stripes and spots by means of an extra warp. Manner of working the Jacquard machine in connection with front harness. Compound harness. Split harness, or shaft lashing, for satin-faced upholstery fabrics.

CARD-STAMPING

Explanation of Card-stamping.

Stamping Cards for Common Damask, Reversible Draperies, Blankets, Beaver Shawls, Double Cloth Cloakings, Petit Point Upholstery, Shaft Lashing, Ingrain Carpet, Brussels Carpet. Two, three and four sections. Proper methods of Card-Lacing.

INGRAIN CARPET

Explanation of the structure of the fabric.

Section of designing paper for the different grades, such as Fine, Superfine and Extra-super.

The various weaves commonly used, and painting of effects produced by them, in color, as used in Warp and Filling.

Modification of the Jacquard machine for the production of Ingrain Carpets. Substitution of Trap-Boards and Tail-Cords for Hooks and Griffe Bars.

Working of the journals in connection with the machine.

Tying up the harness. Cross Point and Centre Ties.

Arrangement of the leashes in the journals.

ADVANCED CALCULATIONS

Find the cost of mixed yarns and stocks. Mixing known quantities of stock at given prices, to produce a mixture at a required price.

Calculations as to textures suitable to the various single and double-cloth weaves.

Calculations as to cost of production of Chenille Table-Covers and Curtains.

Rules and calculations for change gears for the various take-up motions.

Ascertaining desired speed of shafting and size of pulley required for a given speed of loom.

Analysis of the higher classes of fabrics—Overcoatings, Cloakings, Suspenders, Fancy Vestings, Gauze Fabrics, Upholstery Goods, Draperies, Brocatelles, Ingrain and Brussels Carpets, etc.

INSTRUMENTAL DRAWING

Drawing of the principal Jacquard Tie-ups. Roller Strappings and Take-up motions of the various looms. Also illustrating section cut of the various fabrics by means of draw-

ings. Bedford Cords, Velvets, Corduroys, Suspenders, Brussels, Tapestry and Ingrain Carpets, etc.

JACQUARD SKETCHING AND DESIGNING

Analysis of cloth in fancy weaving.

Sketching for Jacquard Designs.

Designing for Jacquard work either from the sketch or from given data.

Arrangement of Designs for economical production.

Transferring the sketch from plain to squared paper.

Combination of Jacquard and Harness work.

Designs for special purposes, such as, Dress Goods, Upholstery Fabrics, Quilts, Draperies, Table-Covers, Cloakings, etc.

DYEING

The course in Dyeing also extends over the full period of the school year, and embraces the coloring of all textile fibres, special attention being given to the Dyeing of Wool and Cotton. Lectures are given from time to time on the character of the fibres, the action of chemicals upon them, their affinity for coloring matter, etc. The methods of Scouring, Bleaching and Dyeing are carefully considered, also the character of the coloring matters used and the purity of the Chemicals, Sulphuric Acid, Pure Alkali, Bichromate of Potash, Extracts of Dye-woods, etc.

The manufacture, purity and use of soaps is considered; what kind of water to use in scouring; how to rectify permanent and temporary hardness in water; the importance of scouring at the proper degree of heat, and the effects of poor scouring.

The methods and chemicals used in bleaching, with their proper use; the use of Mordants, and how to determine the correct one to be used for a given shade.

The peculiarities and application of coloring matters, fast and fugitive colors; how to test the fastness of a color, Aniline colors and all of the coal-tar products, Dye-woods, Alizarines, etc., special attention being given to the methods for producing the best shade and getting the most out of a color.

How to test for a color after it is on the fibre; also stripping the fibre of one color to put on another.

The student spends ten hours each week in the laboratory, making tests, and in the dye-house preparing yarn for the weave-room.

SECOND YEAR—PRACTICAL WORK

The study of the Power Loom. Its parts, with the principles governing each. Also the relation and timing of each part to the other.

Principles of the various shedding motions. Cam motion and the Cam and Scroll motion. Witch or Dobby motion. Single and Double acting.

Explanation of the principles of open and closed shed looms. Their advantages for the construction of different fabrics.

Consideration of the principal picking mechanisms in use. The alternating pick. The pick and pick. The cam and cone motion and sliding pick motion.

Shuttle-box motions. Raise and drop box. Skip-box. Circular box. Box motions controlled by cams. Forward and reverse. Boxes controlled by a chain and by the Jacquard.

Study of the timing and setting of the various box motions, such as Knowles, Crompton, Wood, Furbush, Schaum & Uhlinger, Murkland Carpet Loom, etc.

Let-off motions. Positive let-off. Friction let-off.

Take-up motions. Positive, Non-positive and Variable.

Filling stop-motions duly considered. Knowles, Crompton, Tucker, and Taylor Saalfrank.

Knock-off motions. Fast and loose reeds.

Chain Building. Care of Stock. Harness chain and Box Chain. Building Chains for the Multipliers, as used on the Knowles, Gem and Gingham looms. Stafford Double-Acting Dobby. Schaum & Uhlinger Jacquard Silk Loom.

Dismantling, reconstructing and timing and setting of the above-mentioned motions.

DYEING

Wool—forms in which dyed; Scouring, Bleaching and Dyeing.

Aniline Colors—application and testing their fastness to light and scouring, with the class of goods they are used for.

Benzidene Colors—their fastness, use, etc.

Alizarine Colors—application, best mordants for certain class of goods, fastness to light and scouring, and the class of goods for which they are used.

Matching of shades both with Aniline and Alizarine colors.

Natural and Artificial Alizarine.

Logwood, Fustic, Sanders, Sina wood, Turmeric, etc., with their application and fastness.

Matching shades with wood colors.

Cotton—forms in which dyed.

Bleaching and Dyeing.

Colors on Sumac, with their application and fastness.

Colors of Cutch, with their application and fastness.

One-dip Colors—Benzidene Dye-stuffs, Diamine Dye-stuffs.

Dye-woods and Extracts.

Aniline Black and Cheap Blacks.

Turkey Red, Prussian Blue, Chrome Yellow, etc.

Matching shades on Cotton. Vat Indigo Dyeing.

Experiments to show the use of different metallic salts on the same color. Practical work in the dye-house.

THIRD YEAR

In this year, both the Theoretical and Practical work are confined to the higher classes of Textiles and to Finishing and Carding and Spinning.

The student, having the name of the desired fabric given him, selects his design and coloring, and performs all the operations necessary to its production, including weaving and finishing.

More liberty is allowed the student, and with the view of cultivating the habit of self-reliance, he is compelled to depend largely on his own resources, which tends to strengthen him and give him greater confidence.

In connection with the above the following subjects are taken up: Details of Steam Engineering, Steam-pumps, Injectors, Boiler Setting, Fuels with their Proportionate Results, Power Transmission, Factory Heating, and other detail necessary to the Superintendent in the economical management of the Mill.

NOTE.—Should the student desire to devote his time entirely to one class of Fabrics, or to Dyeing, arrangements can usually be made to that effect.

PARTIAL COURSE

The course of study described above covers a period of three years, and no pains have been spared to make it as thorough and complete as possible. All who are in a position to do so are earnestly requested to take it.

For those whose time will not allow them to take the regular course, a partial course has been arranged, covering a period of three months, October, November and December. The course of study is very similar to that taken up by the regular First Year Class, in the same time.

The theoretical work is confined to single-cloth weaves, yarn calculations and cloth analysis. In the weave room a good deal of time is spent in working out original ideas on the small hand-looms. This course is carefully arranged for the development of ideas gained in the study of theory. The class also takes up a course of Color Combination, intended to train the eye in the harmony of color and to familiarize the pupil with the best methods of effecting combinations. Chemistry and Dyeing are not included.

The idea of the Partial Course is not to make a student a thorough designer, but to give him a start and enable him to make an intelligent beginning, so that he may, if so disposed, profitably continue his studies at home.

EVENING CLASSES

The regular course of study in the Evening Classes includes all of the subjects of study as outlined for the Day Classes, with the exception of the Mechanical Drawing, Color Work, Chemistry and Dyeing.

The structure of Weaves and Fabrics, Cloth Analysis,

Freehand Drawing and Loom Work are taught to such an extent as the limited time will permit.

EVENING COURSE IN DYEING

For the benefit of those who are specially interested in the study and pursuit of Dyeing, a special Evening Class has been arranged. In this class the student is furnished with all the materials and apparatus necessary for carrying on the same class of work as prescribed for the Second Year students in the regular day course, namely, the scouring, bleaching and dyeing of wool and cotton fibres, both loose and in the form of yarn. While it is impossible for those studying in the Evening Class to take up the study of Chemistry, references are constantly being made to Chemistry, and points of interest suggested and discussed, so that the student may have well-grounded reasons upon which to base his study, and understand the most important chemical principles involved in Dyeing.

DONATIONS

The School takes great pleasure in thanking the Manufacturers for the many evidences of their interest and confidence in the institution as expressed by the following list of "Donations" made during the past year:

From the Atwood Machine Co., of Stonington, Conn.—One 20 spindle silk quiller.

From the Crompton Loom Works of Worcester, Mass.—One heavy Worsted Loom, double beams, 27 harness, 4 x 4 boxes; one gingham loom, 6 x 1 boxes; one improved ingrain carpet loom, with freight of $38 prepaid.

From Schaum & Uhlinger, of Philadelphia—One 6 breadth ribbon loom, with 24 harness double-acting dobby.

From R. Sergeson, of Philadelphia—Various shuttles.

From Collins Bros., of Central Falls, R. I.—One 24 spindle ring twister.

From the Knowles Loom Works of Worcester, Mass.—One improved ingrain carpet loom; one improved 30 harness, 4 x 4 boxes, silk loom; one improved, 4 x 4 boxes, silk loom.

mounted with the following 1200 hook single lift Jacquard Machine, from Hamil & Booth, of Paterson, N. J.

From W. W. Altemus & Son, of Philadelphia—One 12 spindle bobbin winder, with improved variable motion; one 12 spindle cop winder, for carpet yarns; one improved Presser spooler.

From C. Moore & Co., of Philadelphia—Jacquard twine for harness.

From John Greer, of Philadelphia—One upright warping mill.

From Sykes Bros., of Philadelphia—200 pounds of carpet yarn.

From William Thornton, of Philadelphia—200 pounds of carpet yarn.

From the M. A. Furbush & Son, Machine Co., of Camden, N. J.—One improved high speed ingrain carpet loom, with fifth box attachment.

From the Aberfoyle Manufacturing Co., of Chester, Pa. —Fine cotton yarns.

From the Charlottesville Woolen Mill, of Charlottesville, Va.—100 pounds of woolen yarns.

From the Assabet Manufacturing Co., of Maynard, Mass.—300 pounds of assorted woolen yarns.

From Day Bros., of Philadelphia—One portable forge.

From Joseph Smith & Co., of Philadelphia—One automatic oil injector for boiler.

From William Wood & Co., and Erben, Search & Co., of Philadelphia—One large show case from the World's Columbian Exposition.

From Erben, Search & Co., of Philadelphia—Exhibit from the World's Columbian Exposition.

From the Russian Commissioners to the World's Columbian Exposition—Valuable collection of raw cotton, cotton yarns, cotton fabric.

From Mr. T. C. Search, of Philadelphia—Collection of samples of worsteds, woolens, and silks purchased in France.

Valuable collection of textiles covering the styles since 1887, formerly the property of Schepper Bros., of Philadelphia.

We are also deeply indebted to Firth & Foster Bros.,

and to Thomas Beardwood & Bro., for their kindness in finishing the various fabrics produced. Also to Conyers Button & Co., Quaker City Dye Works, J. B. Stetson & Co., and The Eddystone Print Works.

Soaps from I. L. Craigin & Co., of Camden, N. J., and from The Warren Soap Manufacturing Co., of Boston, Mass.

Dyestuffs and Chemicals from the following: Wm. Pickhardt & Kuttroff, E. Sehlbach & Co., O. S. Janney & Co., Sykes & Street, Howe, Balch & Co., C. W. Bischoff, Jonathan Horsfall, Wm. J. Matheson & Co., J. M. Sharpless & Co., Banning & Bissell, Schulze, Berge & Koechl, Zellner Bros., Browning Bros., New York and Boston Dyewood Co.

Samples of felt for dyeing experiments from Taylor & Bloodgood, of Cranford, N. J.

One rotary exhaust fan, presented by Gen. A. Hunt Berry, of Boston, Mass.

A PARTIAL LIST OF FORMER STUDENTS OF THE SCHOOL OF INDUSTRIAL ART WITH THEIR PRESENT OCCUPATION

(Pupils are requested to assist the Principal in correcting the List.)

ADOLPH, ALBERT J., Designer and Decorator, Carlile & Joy, Philadelphia, Instructor at Drexel Institute.
ALDRICH, W. S., Instructor, Johns Hopkins University.
ALGEO, BRADLEY C., Instructor, Pennsylvania Museum and School of Industrial Art.
ALLEN, FRANKLIN, Designer, Boston Manufacturing Co., Waltham, Mass.
ALSOP, RACHEL G., Teacher of Drawing, Friends' Select School, 15th & Race Sts., Philadelphia.
APPLEYARD, W. S., Prop. Jamestown Tapestry Mills, Jamestown, N. Y.
AYLWARD, THOS. J., Head Dyer, A. Priestly & Co., Camden, N. J.

BAILEY, VERNON HOWE, Illustrator, Philadelphia.
BANES, R. C., of Erben, Search & Co., Philadelphia.
BANES, W. J., Assistant Manager of Tacony Worsted Mills.
BARR, WILLIAM, Dyestuff Salesman, Davis & Walten.
BATES, WM. H., Designer, Fernbrook Carpet Mills, Yonkers, N. Y.
BEATTY, JOHN R., Woolen and Cotton Manufacturer.
BECK, ROBERT K., Designer.
BEECHEY, E. A., with Clough & Carson.
BERG, KATE H. W., Decorative Painter, Philadelphia.
BILSON, C. R., Designer, DeKosenko & Hetherington, Philadelphia.
BIRD, CLINTON H., Woolen Manufacturer, Bethlehem, Conn.
BISSEGGER, J. J., Draughtsman, with Price Bros., Philadelphia.
BLACK, W. A., Designer, Carey Bros., Philadelphia.
BOND, W. E., Designer, Neshuanik Mills, East Hampton, Mass.
BREADY, EDWIN K., Dress Goods Manufacturer, Philadelphia.
BREWIN, HARRY, Dyer, with Lotte & Mazeres.
BRIDGE, SAMUEL, Designer, Owoneco Silk Co., Norwich, Conn.
BRINTON, ANNE H., Instructor in Drawing at George School, Pa.
BROOKS, JAMES E., Ink Manufacturer, Philadelphia.
BROOM, HARRY, Overseer, Firth & Foster Bros., Philadelphia.
BROWN, E. H., Yarn Manufacturer, with Wilson H. Brown & Bro., Germantown.
BROWN, F. G., Dyestuff Salesman, with Stamford Manufacturing Co.
BURT, JOHN, Head Dyer, M. A. Furbush & Sons.
BUTTERWORTH, SAMUEL, Supt. Weaving, Saranac Silk Mills, Philadelphia.

CAMPBELL, ARCHIE, Head Dyer, Ivins, Dietz and Metzger, Philadelphia.
CAMPBELL, J. ADDISON, Woolen Manufacturer, Manayunk.
CAMPBELL, J. W., Designer, with E. T. Steele & Co., Bristol, Pa.
CAMPBELL, PETER, Dyeing.
CARROLL, BENJAMIN, Designer, Philadelphia.
COCHRAN, JOHN, Ass't Manager of Charlottesville Mfg. Co., Charlottesville, Va.
CONDON, MORRIS G., Overseer, James Doak, Jr., & Co., Philadelphia.
CHADWICK, ROBT., Loom Fixer, J. & J. Dobson, Philadelphia.
CHALK, WILLIAM GEORGE, Designer, Philadelphia.
CHIPMAN, W. E., of Charles Chipman & Sons, Germantown.
CHUBB, AMY, Designer.
CHURCH, MABEL, Teacher of Drawing, Girls' Normal School, Philadelphia.
COUPE, ALBERT, Overseer and Designer, North Star Woolen Mill, Minneapolis, Minn.
CROWTHER, JOHN, Designer, Hope Webbing Co., Providence, R. I.
CUMMINGS, HELEN N., Decorative Painter, Philadelphia.

D'ASCENZO, NICOLA, Decorator and Designer, Karcher & Rehn, Philadelphia, Instructor Pennsylvania Museum and School of Industrial Art.
DAVIDSON, H. O., Designer, Arasapha Mills, Chester, Pa.
DAVIS, SAMUEL, Designer, Albert Granshaw, Manayunk.
DEWAR, WM. H., Designer of Furniture, with Geo. W. Smith, Philadelphia.
DIETZ, JOHN, Designer, Barnes & Beyer, Philadelphia.
DIETZ, JOHN, Designer, Philadelphia.
DUNN, ERNEST, with the Saxon Worsted Mills, Providence, R. I.

ENGEL, GEO. W., Designer, Philadelphia.
ENTWISLE, ALBERT, Instructor, Manual Training School, Philadelphia.
EVANS, GERALD, Designer, Vollmer & Co., Philadelphia.

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FARLEY, ROBERT, Overseer, Weaving Department, Philadelphia.
FEARON, E. T., Second Dyer, with the Quaker City Dye Works.
FENNER, ETHLYN K., Teacher of Drawing, Pratt Institute, Brooklyn.
FETHERSTON, FLORENCE C., Instructor, Pennsylvania Museum and School of Industrial Art.
FIEDLER, G. O., Designer, Tillotson Mills, Pittsfield, Mass.
FINCKEL, CONYERS B., Instructor in Chemistry and Dyeing, Pennsylvania Museum and School of Industrial Art.
FIRTH, EDWARD, with Firth & Foster Bros., Philadelphia.
FITZGERALD, SMITH, Foreman, Wool Sorting, Craven & Dearnley.
FLING, G. E., Head Dyer with G. & J. Fling, Germantown.
FOSTER, J. W., with Firth & Foster Bros., Philadelphia.
FOSTER, FRANK, with Firth & Foster Bros.
FOX, HELEN A., Instructor, Pennsylvania Museum and School of Industrial Art.
FRISSELL, FRANK, Assistant Superintendent Russell Mfg. Co., Middletown, Conn.
FROMUTH, AUGUST, Designer, J. & J. Dobson, Philadelphia.
FRY, J. W. B., Architect, Philadelphia.

GADSBY, H. C., Treasurer, Hope Mills, of North Carolina.
GLEDHILL, JOSEPH, Designer, Philadelphia.
GOODWIN, HOWARD R., Designer, Stimson Bros., Philadelphia.
GOODWIN, MYRTLE D., Teacher, Pennsylvania Museum and School of Industrial Art.
GREER, W. K., Proprietor of Winfield Manufacturing Co., Philadelphia.
GRANGE, CHARLES, Plush Weaver, J. & J. Dobson.
GREMSON, W. E., Designer, with E. A. Wright, Engraver, Philadelphia.
GRAY, W. F., Professor of Drawing, Central High School, Philadelphia.

HALL, T. L., Designer, Philadelphia.
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HAMBURGER, D. E., of the Montgomery Web Co., of North Wales, Pa.
HANEFELD, GERTRUDE, Designer and Engraver, Keystone Watch Case Co., Philadelphia.
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HOGAN, MARY H., Supervisor of Drawing, Public Schools, Harrisburg.
HORROCKS, J. HOWARD, Manager Horrocks & Bro., Frankford.
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HAYS, FRANK A., Architect, Philadelphia.
HENRY, JAMES, Designer, Joseph Leedom, Bristol.
HILL, EUGENE H., Designer, Philadelphia.
HOLT, MARIA L., Manufacturer of Stained-Glass Work, Philadelphia.
HOLT, THOMAS, with Schaum & Uhlinger, Philadelphia.
HOLT, WILLIAM, Designer, Berkey, Gay & Co., Grand Rapids.
HOPFER, CHARLES, Designer, Philadelphia.
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HORAN, JOHN, Designer and Assistant Superintendent New York Mills, Holyoke, Mass.
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HUDSON, MILTON, Architect, Williamsport.

IVINS, WM., JR., with Ivins, Dietz & Metzger, Carpet Manufacturers.

JACKSON, CHAS., Teacher of Drawing, Media.
JACKSON, WALTER H., Mechanical Draughtsman, Schoen Manufacturing Co.
JACOBS, G. BROOKS, of Jacobs Bros., Portland, Oregon.
JACOBS, GASTON C., Designer, with Jacob Bros., Portland, O.
JAMIESON, J. P., Draughtsman, Cope & Stewardson, Philadelphia.
JELLETT, STEWART L., Manager Steam Engineering Co., Philadelphia.
JUNGRUTH, JOHN W., with Thomas Wood & Co., Philadelphia.

KELLY, JOHN, Designer, Philadelphia.
KENWORTH, SAMUEL P., Tapestry Carpet Manufacturer.
KIEHL, NETTIE I., Keystone Watch Case Co., Philadelphia.
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McKEE, VEAGH, Designer, Philadelphia.
McMAHON, J. F., with Clough and Carson.
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MERCER, FRED. T., Draughtsman, Philadelphia.
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OGIER, VICTOR, Designer, Philadelphia.

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PHILLIPS, A. C., Finishing, Joseph Bancroft & Sons.
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SMITH, WALTER, with Simons Bros.
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TRUITT, JOSEPH, with Thomas Dolan & Co., Philadelphia.
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WALENTA, G. W., Designer, Montgomery Webbing Co., North Wales, Pa.
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WATSON, AGNES M., Illustrator, Philadelphia.
WEBER, HARRY, Designer, Barnes & Beyer, Philadelphia.
WEEDEN, W. R., with Weybosset Manufacturing Co., Providence, R. I.
WEISNER, CHAS. B., Designer, Amoskeag Mills, Manchester, N. H.
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WILLIS, ALBERT P., Professor of Drawing, Manual Training School, Philadelphia
WILSON, VICTOR T., Teacher of Drawing, Cornell University.
WOOD, JOHN A., with Samuel Wood, Germantown.
WOOD, SAMUEL, Manufacturer, Germantown.
WOODWARD, ESTELLE, Teacher of Drawing, Philadelphia.
WOLTERS, HERMAN, Designer, Cornelius & Sons, Philadelphia.

YUNDT, CHARLES, Designer, Philadelphia.

ZELLERS, JOHN W., Chemist, W. J. Mathesón & Co., Long Island, N. Y.

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PHILADELPHIA is fortunate in possessing a system of instruction that is exactly what is required all over the country, . . . the good work done by the Pennsylvania Museum and School of Industrial Art in the various branches of industry.—*Painting and Decorating.*

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